

Chemical Analysis Report

CEN-DIST-2023-07-12-02

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

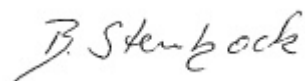
Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2023-06-19-35**
Customer: **CEN-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Jessie Atchison

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 26-JUL-2023 12:42



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Tiger lake - Center

Collection Date/Time: 07/11/2023 11:14

Field ID: HABCE0185_TigerLake2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2423283	DEP SOP: NU-094-1	Color (true)	41		PCU	P432370	
2423284	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P432567	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P432658	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P432502	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P432508	
2423285	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P432365	
2423286	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432334	
		Cylindrospermopsin	0.10	U	ug/L	P432333	
		Desmethyl microcystin LR	0.25	U	ug/L	P432333	
		Microcystin HiLR	0.25	U	ug/L	P432333	
		Microcystin HtyR	0.25	U	ug/L	P432333	
		Microcystin LA	0.98		ug/L	P432333	
		Microcystin LF	0.17	I	ug/L	P432333	
		Microcystin LR	0.82	I	ug/L	P432333	
		Microcystin LW	0.25	U	ug/L	P432333	
		Microcystin LY	0.13	I	ug/L	P432333	
		Microcystin RR	0.13	I	ug/L	P432333	
		Microcystin WR	0.50	U	ug/L	P432333	
		Neosaxitoxin	0.50	U	ug/L	P432334	
		Microcystin YR	0.25	U	ug/L	P432333	
		Saxitoxin	0.50	U	ug/L	P432334	
		Nodularin-R	0.10	U	ug/L	P432333	

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P432370

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432567

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432658

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432502

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432508

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432365

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P432333

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1LR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P432334

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
 Batch ID: P432370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P432567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P432658

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P432502

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P432508

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P432365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	101		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P432333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	110		P	40 - 160
Desmethyl microcystin LR	102		P	40 - 160
Microcystin HILR	101		P	40 - 160
Microcystin HtyR	94.0		P	40 - 160
Microcystin LA	111		P	40 - 160
Microcystin LF	99.0		P	40 - 160
Microcystin LR	102		P	40 - 160
Microcystin LW	95.7		P	40 - 160
Microcystin LY	97.8		P	40 - 160
Microcystin RR	100		P	40 - 160
Microcystin WR	105		P	40 - 160
Microcystin YR	88.9		P	40 - 160
Nodularin-R	94.3		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P432334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	104		P	40 - 150
Neosaxitoxin	82.8		P	40 - 150
Saxitoxin	90.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2423284	Ammonia-N	93.8	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2423308	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2423174	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2423207	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2423291	O-Phosphate-P	99.0	97.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P432333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2422953	Cylindrospermopsin	113	103	P/P	40 - 160
2422953	Desmethyl microcystin LR	117	111	P/P	40 - 160
2422953	Microcystin HiLR	105	95.7	P/P	40 - 160
2422953	Microcystin HtyR	95.6	94.0	P/P	40 - 160
2422953	Microcystin LA	102	100	P/P	40 - 160
2422953	Microcystin LF	102	88.2	P/P	40 - 160
2422953	Microcystin LR	117	112	P/P	40 - 160
2422953	Microcystin LW	96.8	90.5	P/P	40 - 160
2422953	Microcystin LY	99.7	95.1	P/P	40 - 160
2422953	Microcystin RR	98.0	92.6	P/P	40 - 160
2422953	Microcystin WR	96.9	92.7	P/P	40 - 160
2422953	Microcystin YR	88.5	84.2	P/P	40 - 160
2422953	Nodularin-R	93.8	87.9	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P432334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2422953	Anatoxin-a	92.3	106	P/P	40 - 150
2422953	Neosaxitoxin	64.2	74.9	P/P	40 - 150
2422953	Saxitoxin	74.8	86.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P432370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2423165	Color (true)	2.93	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2423284	Ammonia-N	3.89	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2423308	Kjeldahl Nitrogen	0.615	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2423174	NO2NO3-N	0.294	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2423207	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2423291	O-Phosphate-P	1.22	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P432333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2422953	Cylindrospermopsin	9.18	Spike	P	0 - 30
2422953	Desmethyl microcystin LR	5.61	Spike	P	0 - 30
2422953	Microcystin HtIR	9.51	Spike	P	0 - 30
2422953	Microcystin HtyR	1.70	Spike	P	0 - 30
2422953	Microcystin LA	1.84	Spike	P	0 - 30
2422953	Microcystin LF	15.0	Spike	P	0 - 30
2422953	Microcystin LR	3.79	Spike	P	0 - 30
2422953	Microcystin LW	6.81	Spike	P	0 - 30
2422953	Microcystin LY	4.69	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P432333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2422953	Microcystin RR	5.73	Spike	P	0 - 30
2422953	Microcystin WR	4.42	Spike	P	0 - 30
2422953	Microcystin YR	4.94	Spike	P	0 - 30
2422953	Nodularin-R	6.45	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P432334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2422953	Anatoxin-a	14.0	Spike	P	0 - 30
2422953	Neosaxitoxin	15.5	Spike	P	0 - 30
2422953	Saxitoxin	14.3	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2423286

Field Sample ID: HABCE0185_TigerLake2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	116	P	30 - 160
EPA 8321B	Saxitoxin-15N7	109	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A120323

Included Lab Sample IDs: 2423285

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A120325

Included Lab Sample IDs: 2423283

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A120335

Included Lab Sample IDs: 2423286

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	105	104	P/P	50 - 160
Neosaxitoxin	95.3	93.0	P/P	50 - 160
Saxitoxin	98.7	97.1	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A120337

Included Lab Sample IDs: 2423286

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	107	113	P/P	60 - 160
Desmethyl microcystin LR	106	102	P/P	50 - 160
Microcystin HILR	102	99.5	P/P	60 - 160
Microcystin HtyR	95.2	92.9	P/P	60 - 160
Microcystin LA	107	113	P/P	50 - 160
Microcystin LF	89.7	89.3	P/P	60 - 160
Microcystin LR	100	101	P/P	60 - 160
Microcystin LW	92.6	91.9	P/P	60 - 160
Microcystin LY	102	97.3	P/P	60 - 160
Microcystin RR	97.8	96.6	P/P	60 - 160
Microcystin WR	103	99.6	P/P	60 - 160
Microcystin YR	88.1	87.0	P/P	60 - 160
Nodularin-R	93.6	96.8	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120388

Included Lab Sample IDs: 2423284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120423

Included Lab Sample IDs: 2423284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	103	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120426

Included Lab Sample IDs: 2423284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120555

Included Lab Sample IDs: 2423284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	107	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	100				2.93	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	93.8	98.4			3.89
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	103	102			0.615
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.5	98.0			0.294
EPA 365.1 Rev. 2.0	Total-P	104	101	103			1.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.0	97.7			1.22
EPA 8321B	Anatoxin-a	104	92.3	106			14.0
	Cylindrospermopsin	110	113	103			9.18
	Desmethyl microcystin LR	102	117	111			5.61
	Microcystin HILR	101	105	95.7			9.51
	Microcystin HtyR	94.0	95.6	94.0			1.70
	Microcystin LA	111	102	100			1.84
	Microcystin LF	99.0	102	88.2			15.0
	Microcystin LR	102	117	112			3.79
	Microcystin LW	95.7	96.8	90.5			6.81
	Microcystin LY	97.8	99.7	95.1			4.69
	Microcystin RR	100	98.0	92.6			5.73
	Microcystin WR	105	96.9	92.7			4.42
	Microcystin YR	88.9	88.5	84.2			4.94
	Neosaxitoxin	82.8	64.2	74.9			15.5
	Nodularin-R	94.3	93.8	87.9			6.45
	Saxitoxin	90.3	74.8	86.4			14.3

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2423283
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2423284
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2423284
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2423284
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2423284
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2423285
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2423286
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2423286

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	07/12/2023			07/12/2023 15:12	Alexis Price	2423283
EPA 350.1 Rev. 2.0	07/12/2023			07/17/2023 12:04	Khloe J Berg	2423284
EPA 351.2 Rev. 2.0	07/12/2023	07/19/2023 08:44	Samantha L Bates	07/21/2023 13:28	Samantha L Bates	2423284
EPA 353.2 Rev. 2.0	07/12/2023			07/14/2023 11:06	Beverly Y. Sanders	2423284
EPA 365.1 Rev. 2.0	07/12/2023	07/14/2023 14:05	Adam P Silver	07/17/2023 12:34	Chandler E Cox	2423284
EPA 365.1 Rev. 2.0 dissolved	07/12/2023	07/12/2023 13:00	Hana Lee	07/12/2023 14:07	Elise M. Gillis	2423285
EPA 8321B	07/12/2023	07/12/2023 13:00	Hana Lee	07/12/2023 18:48	Juyoung Kim	2423286
	07/12/2023	07/12/2023 13:00	Hana Lee	07/12/2023 23:07	Tae K Lee	2423286